

I have but little to say concerning the *tongue*, which has been most carefully anatomised by Professor Owen. We have injected and dissected this organ, and, as Prof. Owen has shown, no vascular reservoirs, or any trace of erectile tissue is to be found, whereby (as Sir Everard Home supposed) the prehensile movements of the organ might be regulated; on the contrary, its exalted functions are due to muscular action, the motor nerves supplying it being very large and tortuous when the tongue is not stretched out. Imbedded in the cellular aponeurosis surrounding the styloglossi and lingualis muscles, were found three small semitransparent cysts, containing entozoa, and resembling somewhat those *cysticerci* which we spoke of when describing the liver. A microscopic examination of their contents throws much doubt upon their identity, but upon these differences we shall not now enter. The tongue measures in length 16 inches; in breadth (3 in. from tip)  $2\frac{1}{4}$ , and at the molar region 3 inches; the anterior darker portion (or that continually exposed to the air) measures rather more than 7 inches.

In conclusion it may be noted, that at the anterior part of the mouth, beneath the tongue and immediately behind the incisors, there are two small membranous folds, at the base of each of which the orifices of two salivary ducts are visible. The palatal ridges and buccal papillæ are largely developed. The passages to the tonsils readily admit the tip of the little finger. The rudimentary uvula consists of three small and closely approximated papillæ. The trachea measures 4 feet in length, and if slightly stretched will be increased 7 inches. The elastic ligamentum nuchæ, which in the living state extended about 5 feet 6 inches, after its removal measured only 3 feet 7 inches. Examined microscopically Professor Quekett tells us that the fibres of this latter structure exhibit a transversely striated appearance, which is due to the presence of certain (scalariform) openings, which do not extend across the entire diameter of the fibres. Several gentlemen have availed themselves of the opportunity here afforded; we have searched for these characteristic markings according to indications given by Prof. Quekett, but it does not appear that any of us have succeeded in detecting the openings in question.

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XLVII.—On the Growth of Sea-Weeds.

By P. H. GOSSE, A.L.S.

THE Rhodosperms, or Red Sea-weeds, must be the test of success in any attempts to cultivate the marine *Algæ*, and this for several reasons; such as their superior beauty; the great number

of their species; their delicacy of habit; and their organic rank in the class. The Chlorosperms, or Green Sea-weeds, have been mastered; and the central tanks in the Zoological Society's Aquarium afford interesting and easily accessible examples of the successful treatment of these. Here the visitor sees a profuse growth of *Ulva*, *Enteromorpha*, and *Conferva*, covering the slate ends of the tanks with their abundant vegetation, all of which has grown since last summer; and an object of exquisite beauty is presented by a large stone completely concealed by a crop of the lovely *Bryopsis plumosa*, which has overspread its surface with luxuriant fronds growing so densely as to remind us of a bank of moss, though greatly excelling it in elegance, and affording shelter to myriads of tiny *Entomostraca*, that play in its foliage like clouds of moving dust. Hitherto, however, the Rhodosperms have resisted domestic culture, refusing, like the eagle\*, to propagate in captivity.

It was therefore with great satisfaction that I thought I perceived indications of new growth in some Red Algæ which I am keeping in a small tank at my residence at Islington. Some of these were received from the coast at the end of February last, and others had survived the winter in confinement, having been brought up from Weymouth on the 1st of December 1853.

The first suspicion which I had that any of these were sprouting, was produced by my observing, early in April, minute points projecting from various parts of the frond of a *Gracilaria confervoides*. They were of a paler red than the rest of the frond, and from their appearance I conjectured that they might be new shoots sprouting forth. I observed the same appearance on other fronds of the same species, of which several tufty plants were in the tank; but it was not until the 14th of April that I instituted a careful examination of these and other Rhodosperms. On that day I selected fronds of different species, noting with precision the size, form, and number of their projecting tubercles, and making accurate sketches of them, both of the natural size, and as they appeared under a lens. Thus I obtained fixed data from which to determine the question of their growth.

The flattened wire-like fronds of *Gracilaria*, which I selected, had a considerable number of these tiny points, none of which exceeded half a line in length; they generally projected in pairs from opposite sides of the frond, but showed a tendency to cluster about the terminations of the fronds, which had been broken off and were therefore truncate. On the 21st the points had increased to twice, and in some instances to thrice their former length; they had acquired a fusiform figure, and were indubitably growing shoots.

\* "The prison'd eagle will not pair."—BYRON.

On the 14th the lens had detected, springing parasitically from a frond of *Gracilaria*, a very minute filament of a *Ceramium*, just discernible. Its tip was simply pointed; but on the 17th this had divided into two incurvated hooks, which on the 21st had increased so as to be visible with the naked eye.

A plant of *Chondrus crispus*, the firm fleshy variety, showed the extremities of its old fronds plump, somewhat swollen, and of a tender cherry-red hue; while from the base new minute fronds were springing. The latter on the 21st had doubled their length. This plant has been in my possession all the winter.

So also has a fine specimen of *Rhodymenia jubata*, dredged in Weymouth Harbour last November. It consists of numerous ribbon-like fronds, much fringed at the margins. Their original red hue had become much discoloured in the course of the winter, partly by decay, partly by the growth of minute fungoid Algæ, and partly by the deposition of the spores from *Ulva*, &c., which adhered, like a green dust, to them. The fronds had curled upon themselves a good deal, and I was often on the point of throwing away the plant, as a worthless incumbrance. I was much pleased therefore to see signs of vigour here, and those more unequivocal than in any other species I had examined. On the surface of the fronds and along their edges new ciliary filaments were sprouting, but most numerous at the tips of the branchlets, and of the fronds themselves. From some of these extremities, which were attenuated to a slender point, the "*cilia*" were shooting in close-set array, half a dozen or more springing from the same point, radiating and crossing each other in all directions, a perfect maze of tiny spines. At first the individual *cilia* in these groups were less than a line in length; but they speedily increased both in length and numbers, and were found studding the ends and branchlets of all the fronds, imparting to them a singular appearance.

On the 28th (after the lapse of another week) there was no longer any possibility of doubt as to the plants being in a growing condition. The budding points on the *Gracilaria* had greatly increased in length, and some of them were already bifurcating; several of the shoots were now one-sixth of an inch in length, or at least four times as large as they had been when first measured a fortnight before.

The furcate points of the *Ceramium*, the basal shoots of the *Chondrus*, and the cilia of the *Rhodymenia*, had all likewise manifested similar increase.

On the same day (the 28th of April) I marked some minute scales of the *Corallina officinalis*, in its incrusting stage; which from the freshness and plumpness of their edges, especially of the more prominent papillæ, seemed to be in a growing state.

I made a careful sketch of the outline of one, to serve as a standard of comparison. For a fortnight I could detect no certain increase, but being then absent from home for a week, I found on my return a decided growth, the scale having pushed out an irregular sinuous projection.

At the time of my closing this note for the press, the state of things is as follows. The shoots of the *Gracilaria* have attained a length of one-third to one-half of an inch: those of the *Rhodymenia jubata* are from one-half to two-thirds of an inch in length; they are very numerous, especially about the roots of the plant, where they form a dense thicket of a rich crimson colour. The shoots of the *Chondrus* are steadily increasing, but more slowly. The tiny *Ceramium* has come to an untimely end, having been eaten off, probably by some vagrant *Rissoa*. The *Corallina* I have just described. Besides these, patches of the fine dense filaments of a *Callithamnion* (perhaps *Rothii*) are appearing on some of the shells; and the tips of a specimen of *Phyllophora rubens* have the brightness of new growth; but as I have not subjected these to strict comparisons, I will not insist on them. The facts above recorded are sufficient to show that there is nothing in the nature of the *Rhodospiræ* to prevent their being cultivated in confinement, with a facility far superior to that which attends the culture of multitudes of terrestrial plants that reward the skill and perseverance of the horticulturist.

P. H. Gosse.

May 19th, 1854.

## PROCEEDINGS OF LEARNED SOCIETIES.

### ZOOLOGICAL SOCIETY.

May 25, 1852.—J. Gould, Esq., F.R.S., Vice-President, in the Chair.

DESCRIPTIONS OF EIGHTEEN NEW SPECIES OF LAND SHELLS,  
FROM THE COLLECTION OF H. CUMING, ESQ.

BY DR. L. PFEIFFER.

1. *HELIX AVUS*, Pfr. *H. testâ umbilicatâ, depressâ, solidâ, obliquè striatâ, nitidâ, pallide fulvâ; spirâ convexâ, brevi; suturâ levi; anfractibus 4 vix convexiusculis, sensim accrescentibus, ultimo carinato, utrinque convexiore, fascia fusca ad suturam, pallidaque ad carinam ornato, basi pallido, circa umbilicum mediocrem, pervium subcompresso; aperturâ vix obliquâ, subtriangulâ-lunari; peristomate crasso, albo, expanso et reflexo, marginibus remotis, callo crasso junctis.*

Diam. maj. 37, min. 31, alt. 18 mill.

*Hab.* in insulis Philippinis.

2. *HELIX EMILIANA*, Pfr. *H. testâ perforatâ, conoideo-lenti-*